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5. Answer the following (any two) : (2×7.5=15)

- What is endosperm? Define the types of endosperm based on development. Briefly discuss about embryo-endosperm relationship.
- Elaborate on Körper -Kappe theory of root apex organization.
- Discuss anomalous secondary growth in a stem with the suitable example.

6. Answer the following (any five) : (5×3=15)

- Explain why mitochondria regarded as semi-autonomous cell organelles. Justify your answer.
- Which stage of dicot embryogenesis exhibits radial organization? Explain in detail.
- Does plant exhibit polarity in their growth? Discuss your view point.
- Describe the role of callose in atleast two plant developmental processes.
- Write a note on structure and functions of trichomes.
- Define pollen-pistil interactions. What are the steps in the series of pollen-pistil interactions?

(1000)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7043

K

Unique Paper Code : 2162522301

Name of the Paper : Plant Cell and Developmental Biology

Name of the Course : B.Sc. (P) Life Science

Semester : III

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

- Write your Roll No. on the top immediately on receipt of this question paper.
- All questions carry equal marks.
- Attempt total four questions including Question No. 1 which is compulsory.
- All parts of a question must be attempted together.
- Draw well-labelled diagrams wherever necessary.

1. (a) Fill in the blanks (any five) : (5×1=5)

- In wood, elements of xylem are blocked by balloon like ingrowths called _____
- The pollen-kitt substances plays an important role in _____

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- (iii) Primary cell wall is primarily made of _____ and _____
- (iv) Secondary roots originate from _____ layer.
- (v) _____ proposes the Tunica-carpus theory of shoot apex organization.
- (vi) Each Golgi stack has two distinct ends, or faces namely _____ and _____

(b) Define the following (any five) : (5×1=5)

- (i) Open vascular bundles
- (ii) Caruncle
- (iii) Differentiation
- (iv) Cytoplasmic streaming
- (v) Double fertilization
- (vi) Non-albuminous seeds

(c) State true or false for the following statements (any five) : (5×1=5)

- (i) Pollen tube entry into ovule through micropyle is known as mesogamy.
- (ii) Endocytosis usually does not occur in plant cells due to their rigid cell wall.
- (iii) Filiform apparatus is present in the central cell of embryo sac.

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- (iv) Dicot leaves are usually dorsiventral.
- (v) Stylar canal is present in solid type of style.
- (vi) The F-type/H⁺ATPase is found on the inner mitochondrial membrane in eukaryotes.

2. Differentiate between the following (any three) : (3×5=15)

- (a) MGU and FGU
- (b) Smooth and Rough endoplasmic reticulum
- (c) Monocot and dicot stem
- (d) Autogamy and Allogamy

3. Draw well-labelled diagram of the following (any three) : (3×5=15)

- (a) Ultrastructure of chloroplast
- (b) Vertical section of monocot leaf (*a part cellular*)
- (c) Pollen wall
- (d) Types of collenchyma

4. Write short notes on the following (any three) : (3×5=15)

- (a) Parenchyma
- (b) Seed development
- (c) Nucleus
- (d) Microsporogenesis

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